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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,779	10/21/2003	Peter J. Hopper	100-23500 (P05712)	4526

33402 7590 02/24/2004

LAW OFFICES OF MARK C. PICKERING  
P.O. BOX 300  
PETALUMA, CA 94953

EXAMINER

STEIN, STEPHEN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 02/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/689,779

Applicant(s)

HOPPER ET AL.

Examiner

Stephen J Stein

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 10-16 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,562,781 (Ingram et al.).

Ingram teaches a photodiode of alternating N type and P type semiconductor films (See abstract and Figure 4).

3. Claims 1-9 and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,464,318 (Hopper et al.).

Hopper teaches an imager cell comprising a silicon germanium n-type semiconductor layer (layer 212), a single crystal silicon p-type layer (layer 214), a p-type silicon germanium layer (layer 216), and a p-type single crystal silicon layer (layer 218) on the p-type silicon germanium layer (See figures 3 and 4 and col. 4-6).

*Allowable Subject Matter*

4. Claims 10-16 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

While the prior art of record teaches an imager cell comprising a silicon germanium n-type semiconductor layer, a single crystal silicon p-type layer, a p-type silicon germanium layer, and a p-type single crystal silicon layer on the p-type silicon germanium layer, the prior art fails to teach or suggest that the fourth region has a greater dopant concentration than the second region of semiconductor material. The prior art or record further fails to teach or suggest that the imager further comprises a fifth region of semiconductor material located on the fourth region of semiconductor material, the fifth region of semiconductor material having the first conductivity type; a sixth region of semiconductor material located on the fifth region of semiconductor material, the fifth region of semiconductor material having the second conductivity type; and a seventh region of semiconductor material located on the sixth region of semiconductor material, the seventh region of semiconductor material including silicon and germanium and having the second conductivity type.

*Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is 572-272-1544. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the

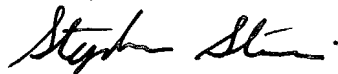
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attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing 572-272-1535. The official fax number is 703-872-9306.

February 17, 2004

A handwritten signature in black ink, appearing to read "Stephen J. Stein". The signature is fluid and cursive, with a period at the end.

Stephen J. Stein  
Primary Examiner  
Art Unit 1775